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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,392

07/17/2006

Ulf Hagg

1515-1042

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08/19/2009

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EXAMINER

WU, IVES J

ART UNIT

PAPER NUMBER

1797

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DELIVERY MODE

08/19/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,392	<b>Applicant(s)</b> HAGG ET AL.	
	<b>Examiner</b> IVES WU	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/17/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

- (1). The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A “Sequence Listing” is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required “Sequence Listing” is not submitted as an electronic document on compact disc).

Please provide *HEADING* of each section in the Specification.

*Claim Objections*

- (2). **Claim 9** is objected to because of the following informalities: In claim 9, it recites:character s. It would be **characterised**. Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

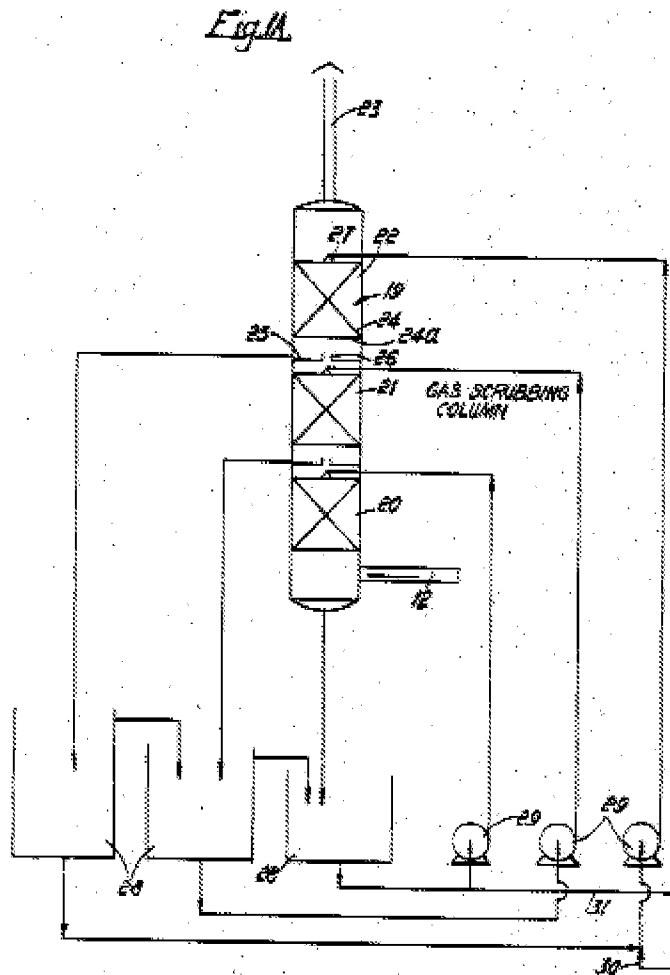
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- (3). **Claims 1-3, 11** are rejected under 35 U.S.C. 102(b) as being anticipated by Warner et al (US 3528220).

As to a scrubber for the cleaning of gases containing several scrubber stages (1-4), where the scrubber stages are arranged in a scrubber tower with different stages at different levels above each other in the scrubber tower in **independent claim 1**, Warner et al (US 3528220) disclose avoidance of air pollution in the manufacture of glass fiber products (Title). It is further shown in the Figure below, the gas scrubbing column has polluted air stream inlet 12, three scrubbing stages 20,21 and 22 arranged as claimed.



As to characterize in that at least one of the scrubber stages (2-4) above the lowest scrubber stage (1) comprising a ring-shaped tank (10,15,20) arranged inside the scrubber tower which ring-shaped tank (10, 15, 20) is arranged surrounding a central channel (9, 14, 19) through which the gas that is to be cleaned can pass upward in **independent claim 1**, as shown in the Figure above, the liquid collecting tray 25, and chimney riser 26 are read on the limitations as claimed.

As to characterize in that all scrubber stages (2-4) above the lowest scrubber stage comprising a ring-shaped tank located inside of the scrubber tower in **claim 2**, as shown in the Figure above, it contains features as claimed.

As to characterize in that at each stage of the scrubber, a circulation pump is arranged to feed through feed pipes fluid present in the tank from the tank at the bottom of the scrubber stage to spray beams arranged at the upper part of the scrubber stage for distribution over the cross-section of the scrubber in a direction against the upwards gas flow in **claim 3**, as shown in the Figure above, the three circulation pump and spray 27 which reads on the limitations as claimed.

As to characterized in that each stage of the scrubber a circulation pump being arranged to feed through feed pipes fluid present in the tank from the tank at the bottom of scrubber stage to spray beams arranged at upper part of the scrubber stage for distribution over the cross-section of the scrubber in a direction against the upwards gas flow in **claim 11**, as shown in the Figure above the liquid collecting tray 25 at bottom of the scrubber stage and spray 27 as well as the piping line (not numbered) to the spray 27, which read on the limitations as claimed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

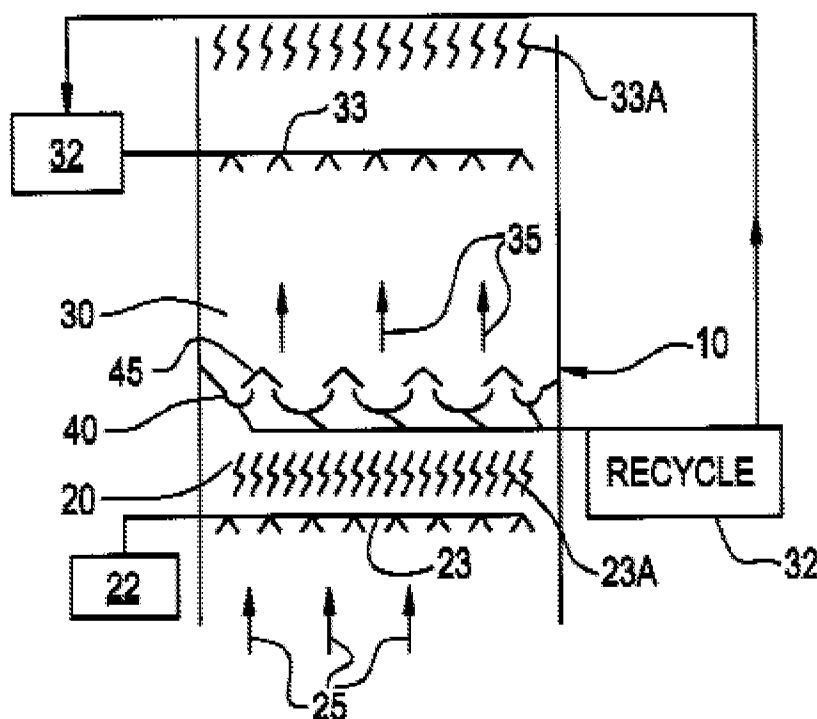
(4). **Claims 4-5, 12-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner et al (US 3528220) in view of Nolan (US 6399030B1).

As to characterized in that at bottom of each stage of the scrubber above the lowest a separation trough being arranged separating the scrubber fluid from the upwards flowing gas and leading the scrubber fluid to the ring-shaped tank in **claim 4**, characterized in that separation trough comprising obliquely placed laminae leading scrubber fluid that arrives from above to

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trough channels arranged under the laminae, which channels lead the scrubber fluid onwards to the ring-shaped tanks in **claim 5**, Warner et al (US 3528220) disclose each zone containing Glitsch Grid packing 24 supported on a baffle plate 24a and has a liquid-collecting tray 25 at its base. Warner et al do not teach troughs as claimed.

However, Nolan (US 6399030B1) teaches combined flue gas desulfurization and carbon dioxide removal system (Title). As shown in the Figure 1 below, it contains a series of baffles and drains 40. One or both of the drains 40 and baffles 45 may be oriented at an inclined angle toward a front or back of the wall of the vessel 10 to improve drainage of the 2<sup>nd</sup> reagent 32 from the vessel 10 for recycling (Col. 3, line 6-20).

**FIG. 1**

The advantage of baffles and drains is to provide a simple, mechanical separator between the gas separation processes within the vessel (Col. 2, line 4-6).

Therefore it would have been obvious at time of the invention to install the baffles, drains of Nolan for the baffle plate for each scrubber stage in the vessel of Warner et al in order to attain the advantage cited above.

As to characterized in that the circulation pump being arranged connected to the ring-shaped tank and located at essentially the same level as the tank in **claims 12 and 13**, the disclosure of Warner et al is incorporated herein by reference, the most subject matters as currently claimed, has been recited in Applicants' claim 6, and has been discussed therein.

As to characterized in that the circulation pump being arranged on the ground outside of the ring-shaped tank and outside of the scrubber tower, and connected by means of an inlet pipe to a connector on the tank in **claims 14 and 15**, the disclosure of Warner et al is incorporated herein by reference, the most subject matters as currently claimed, has been recited in Applicants' claim 9, and has been discussed therein.

(5). **Claims 6-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner et al (US 3528220).

As to characterized in that the circulation pump being arranged connected to the ring-shaped tank and located at essentially the same level as the tank in **claim 6**, Warner et al (US 3528220) disclose the liquid collecting in the trays 25 draining into respective tanks 28 whence it can be re-circulated by pumps 29 to the respective spray (Col. 4, line 65-67). It would be obvious to have circulation pump at same level of liquid collecting tray because of rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

As to characterized in that the circulation pump being arranged outside of the ring-shaped tank and outside of scrubber tower, and connected by means of an inlet pipe to a connection on the tank in **claim 7**, as shown in the Figure above, the recirculation pumps are outside of the liquid collecting tray and a pipe is shown for the connection, it would have a connector for the connection between the liquid collecting tray and pipe for the convenience of maintenance as well known in the art of engineering practice. Also, it would place the pump on the ground because of rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

As to characterized in that a pump tank being arranged outside of the ring-shaped tank



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As to characterized in that a pump tank being arranged outside of the ring-shaped tank and outside of scrubber tower directly connected to the tank through a connection and that the circulation pump is arranged in or connected to the pump tank in **claim 8**, as shown in the Figure above, the tank 28 reads on the limitations as claimed.

As to characterize in that the circulation pump being arranged on the ground outside of the ring-shaped tank and outside of the scrubber tower, and connected by means of an inlet pipe to a connector on the tank in **claim 9**, as shown in the Figure above, the recirculation pumps are outside of the liquid collecting tray and a pipe is shown for the connection, it would have a connector for the connection between the liquid collecting tray and pipe for the convenience of maintenance as well known in the art of engineering practice. It would place the pump on the ground because of rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

As to characterized in that the feed pipe for feeding the scrubber fluid to the nozzle beams being located inside the outer surface of the scrubber tower in **claim 10**, it would be obvious to place the feeding pipe inside the gas scrubbing column of Warner et al because of the rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu

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/Frank M. Lawrence/

Primary Examiner, Art Unit 1797